

RECEPTACLE MOUNTING CONVERTER

Cross Reference to Related Applications

This is a non-provisional application based upon U.S. provisional patent application
5 serial no. 60/408,372, entitled "RECEPTACLE MOUNTING CONVERTER", filed September
5, 2002.

BACKGROUND OF THE INVENTION

1. Field of the invention.

The present invention relates to electrical distribution harnesses for modular wall panels,
10 and, more particularly, to a method and a device for mounting electrical receptacles for such a
harness.

2. Description of the related art.

Electrical distribution harnesses are located in modular wall panels to provide electrical
power to a user located in a space defined by the wall panels. The electrical power can be used
15 to power lighting, computers and other office machines in an office environment, or can be used
to power lighting, tools and other equipment in a laboratory or industrial setting.

The electrical distribution harnesses are hidden within the modular wall panel, typically
near to or attached to a frame of the modular wall panel, and provide user access to the electricity
via receptacles, such as standard duplex receptacles.

20 The receptacle components need to electrically connect to the electrical distribution
harness. Mechanical forces are applied to the receptacle when plugging and unplugging a power
cord and the like. A stable mechanical connection is required for the receptacle to ensure that the
receptacle does not work itself loose from the electrical distribution harness after multiple power
cord plugging and unplugging cycles.

A method of mounting a receptacle to an electrical distribution harness is known whereby a receptacle retaining element is part of the electrical distribution harness. The receptacle electrically connects to an electrical port on the harness and mechanically mounts into the receptacle retaining element. A problem with this method is the receptacle retaining element
5 adds complexity to the harness design, and at least as importantly, increases the manufacturing cycle time of the harness. Other known methods include clips (which are also part of the electrical distribution harness) to hold the receptacle module and the clips are susceptible to bending and provide limited retaining force in the direction of plug engagement and disengagement.

10 What is needed in the art is a device and method that mechanically holds a receptacle to an electrical distribution harness in a reliable and cost effective manner, and at the same time, is separate from the electrical distribution harness.

SUMMARY OF THE INVENTION

The present invention provides a device and method to hold a receptacle module to an
15 electrical distribution harness, the device being separate from the electrical distribution harness and at least partially surrounding the receptacle.

The invention comprises, in one form thereof, a modular wall panel assembly, including a modular wall panel and an electrical distribution harness connected to the modular wall panel.

The electrical distribution harness includes an electrical connector, at least one channel

20 extending from and electrically connected with the electrical connector, an electrical receptacle connected to the electrical connector and at least one receptacle mounting bracket. The receptacle mounting bracket includes a cutout at least partially surrounding the electrical receptacle. The receptacle mounting bracket has at least one attachment element connected to the modular wall panel and/or at least one channel.

An advantage of the present invention is that it provides a device and method that mechanically holds a receptacle to an electrical distribution harness in a reliable and cost effective manner.

Another advantage of the present invention is that it is not part of the electrical
5 distribution harness.

Yet another advantage of the present invention is that it provides a positive retaining force in the direction of plug engagement and disengagement.

A further advantage of the present invention is that it can be used with existing designs of receptacle modules.

10 A yet further advantage of the present invention is that an existing electrical distribution harness can be converted to a design with a separate receptacle mounting bracket.

BRIEF DESCRIPTION OF THE DRAWINGS

The above-mentioned and other features and advantages of this invention, and the manner of attaining them, will become more apparent and the invention will be better understood
15 by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is perspective view of an embodiment of an electrical distribution harness with a receptacle mounting bracket according to the present invention;

Fig. 2 is an exploded view of the electrical distribution harness of Fig. 1 shown in relation
20 to a partial fragmentary view of an embodiment of a modular wall panel; and

Fig. 3 is a side view of the receptacle mounting bracket of Fig. 2 as viewed from section line 3-3.

Corresponding reference characters indicate corresponding parts throughout the several views. The exemplification set out herein illustrates one preferred embodiment of the invention,

in one form, and such exemplification is not to be construed as limiting the scope of the invention in any manner.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, and more particularly to Fig. 2, there is shown a modular
5 wall panel assembly 10 which generally includes a modular wall panel 12 and an electrical
distribution harness 14.

Modular wall panel 12 includes wall frame 16 having connected thereto holder 18.
Modular wall panel 12 further includes base cover 20 and panels 22. Base cover 20 can include
at least one aperture (not shown) through which an electrical receptacle can protrude.

10 Electrical distribution harness 14 includes electrical connector 24 and at least one channel
26 extending from and electrically connected, via conductors 28, with electrical connector 24.
The number of conductors 28 can vary from application to application, but will generally include
ground, neutral and line conductors, or some combination and/or multiples thereof. Isolated
circuit conductors and/or isolated grounds can be included. Conductors 28 electrically
15 interconnect terminals in electrical connector 24 with corresponding terminals in end connectors
32. End connectors 32 are typically connected to a source of electrical power, another electrical
distribution harness and/or a jumper cable (all not shown). At least one electrical receptacle 30
is connected to electrical connector 24. In the embodiment shown, four electrical receptacles 30
can be connected to electrical connector 24 with two electrical receptacles 30 on each side of
20 electrical distribution harness 14 although only two electrical receptacles 30 are shown. At least
one receptacle mounting bracket 34 has a cutout 36 at least partially surrounding electrical
receptacle 30. Receptacle mounting bracket 34 has at least one attachment element 38 connected
to modular wall panel 12 (at holder 18 for example) and/or to at least one channel 26.

Receptacle mounting bracket 34 includes receptacle frame 40 that can be approximately rectangular in shape which is complimentary in shape to receptacle 30 as shown. Alternatively, receptacle frame 40 can be other shapes complimentary with other alternative shapes of receptacle 30. Receptacle mounting bracket 34 can have an approximately C-shaped cross section, for a section at an end thereof, as shown in Fig. 3. Attachment element 38 can include hole 42 and fastener 44 extending through hole 42 and attached to a corresponding channel 26 or modular wall panel 12.

In use, electrical distribution harness 14 is provided including at least one channel 26 and electrical connector 24. Electrical receptacle 30 is inserted into electrical connector 24.

Receptacle mounting bracket 34 is placed over electrical receptacle 30 such that cutout 36 at least partially surrounds electrical receptacle 30. Receptacle mounting bracket 34 is attached to electrical distribution harness 14 or modular wall panel 12.

While this invention has been described as having a preferred design, the present invention can be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains and which fall within the limits of the appended claims.